Complete Summary

GUIDELINE TITLE

Postinfectious cough: ACCP evidence-based clinical practice guidelines.

BIBLIOGRAPHIC SOURCE(S)

Braman SS. Postinfectious cough: ACCP evidence-based clinical practice guidelines. Chest 2006 Jan;129(1 Suppl):138S-46S. [76 references] PubMed

GUIDELINE STATUS

This is the current release of the guideline.

COMPLETE SUMMARY CONTENT

SCOPE

DISEASE/CONDITION(S)

Postinfectious cough, including cough caused by Bordetella pertussis infection

GUIDELINE CATEGORY

Diagnosis
Evaluation
Management
Prevention
Treatment

CLINICAL SPECIALTY

Family Practice
Infectious Diseases

Internal Medicine
Pediatrics
Pulmonary Medicine

INTENDED USERS

Physicians

GUIDELINE OBJECTIVE(S)

To present the evidence for the diagnosis and treatment of postinfectious cough, including the most virulent form caused by Bordetella pertussis infection, and make recommendations that will be useful for clinical practice

TARGET POPULATION

Patients with postinfectious cough

INTERVENTIONS AND PRACTICES CONSIDERED

Diagnosis/Evaluation

1. Medical history
2. Physical examination
3. Nasopharyngeal aspirate or polymer swab of the nasopharynx for confirmation of suspected Bordetella pertussis infection)
4. Paired acute and convalescent sera (for suspected B pertussis infection)

Treatment

Postinfectious Cough

1. Inhaled ipratropium
2. Inhaled corticosteroids
3. Systemic corticosteroids (prednisone)
4. Central acting antitussive agents
    - Codeine
    - Dextromethorphan

Bordetella Pertussis Infection

1. Macrolide antibiotic (with patient isolation for 5 days from the start of treatment)

Prevention

1. Vaccination against pertussis infection as part of a complete diphtheria, tetanus, acellular pertussis (DTap) primary vaccination series (in children)
2. Vaccination with TDap vaccine (for all adults up to the age of 65)

Interventions and practices considered but not recommended include polymerse chain reaction (PCR) confirmation of B Pertussis infection and use of long-acting beta-agonists, antihistamines, corticosteroids, and pertussis immunoglobulin (Ig).

MAJOR OUTCOMES CONSIDERED

- Resolution of cough
- Bordetella pertussis infection rate

METHODOLOGY

METHODS USED TO COLLECT/SELECT EVIDENCE

Hand-searches of Published Literature (Primary Sources)
Hand-searches of Published Literature (Secondary Sources)
Searches of Electronic Databases

DESCRIPTION OF METHODS USED TO COLLECT/SELECT THE EVIDENCE

The evidence review procedures included section-specific targeted searches as well as a formal systematic review on selected topics.

Formal Systematic Reviews

Formal systematic reviews on selected topics covered in the guideline were performed by the Center for Clinical Health Policy Research at Duke University Medical Center. For the key questions addressed by the formal systematic reviews see the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field).

Literature Search Strategy

The Duke University research team conducted a systematic and comprehensive literature review that began with searches of MEDLINE from 1966 through August 2003 with limits of articles published in the English language and with human subjects. Search terms included the medical subject heading term "cough" combined with a published strategy for identifying randomized controlled trials (RCTs). A separate search combined the medical subject heading terms "bronchiectasis," "cystic fibrosis," and "respiratory therapy" with the RCT strategy. However, searches using terms related to the therapeutic use of specific agents, including "antitussive agents," "expectorants," "bronchodilator agents," "ipratropium," "albuterol," "orciprenaline," and "cromolyn sodium" had poor specificity in the absence of the term "cough," and thus were not used. Additional searches were targeted to double-blind RCTs of nonspecific antitussive therapy and protussive drugs (e.g., expectorant, mucolytic, mucus-modifying agents) for all indications other than those listed in question 2 in the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field) that reported on cough clearance or cough symptoms and had been published since the previous American College of Chest Physicians cough guidelines were published. The trials identified in this search were provided to the section authors.

In addition to MEDLINE, the Duke University research team searched the National Guideline Clearinghouse and the Cochrane Library (including the Cochrane Database of Systematic reviews, the Cochrane Controlled trial register, and the Database of Abstracts of Reviews of Effectiveness). Additional studies were identified from the reference lists of review articles and by querying experts in the field.

Inclusion and Exclusion Criteria

The criteria for the inclusion and exclusion of articles were developed for each research question and are shown in Table 1 in the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see the "Availability of Companion Documents" field). The abstracts of all articles were reviewed by two physicians (one with methodological expertise and one with content area expertise), and those meeting the inclusion criteria were selected for review in full text.

Section-Specific Review

Recommendations were obtained from data using a National Library of Medicine (PubMed) search dating back to 1950, which was performed in August 2004, of the literature published in the English language. The search was limited to human studies, using the search terms "cough," "postinfectious cough," "postviral cough," "Bordetella pertussis," "pertussis infection," and "whooping cough."

NUMBER OF SOURCE DOCUMENTS

Not stated

METHODS USED TO ASSESS THE QUALITY AND STRENGTH OF THE EVIDENCE

Expert Consensus
Weighting According to a Rating Scheme (Scheme Given)

RATING SCHEME FOR THE STRENGTH OF THE EVIDENCE

Quality of the Evidence

Good = evidence based on good randomized controlled trials (RCTs) or meta-analyses

Fair = evidence based on other controlled trials or RCTs with minor flaws

Low = evidence based on nonrandomized, case-control, or other observational studies

Expert opinion = evidence based on the consensus of the carefully selected panel of experts in the topic field. There are no studies that meet the criteria for inclusion in the literature review.

METHODS USED TO ANALYZE THE EVIDENCE

Systematic Review with Evidence Tables

DESCRIPTION OF THE METHODS USED TO ANALYZE THE EVIDENCE

Note from the National Guideline Clearinghouse (NGC): The evidence review procedures included section-specific targeted searches as well as a formal systematic review on selected topics. Formal systematic reviews on selected topics covered in the guideline were performed by the Center for Clinical Health Policy Research at Duke University Medical Center. For more information see the section titled "Methodology and Grading of the Evidence for the Diagnosis and Management of Cough" (see "Availability of Companion Documents" field).

Formal Systematic Reviews

Synthesis

Details from "included" articles (see the "Description of Methods Used to Collect/Select the Evidence" field) were extracted and recorded into evidence tables. No quantitative synthesis, such as meta-analysis, was performed, but aggregated data were described and analyzed qualitatively.

METHODS USED TO FORMULATE THE RECOMMENDATIONS

Expert Consensus
Expert Consensus (Consensus Development Conference)
Informal Consensus

DESCRIPTION OF METHODS USED TO FORMULATE THE RECOMMENDATIONS

The recommendations were formulated by an international panel of 26 experts representing seven clinical specialties. Many were members of the American College of Chest Physicians (ACCP), but representatives from other medical associations, including the American College of Physicians, Canadian Thoracic Society, and American Thoracic Society, also participated on the panel. These experts convened on several occasions, including a panel conference in Boston, MA, in November 2004, in which they deliberated the final content and recommendations, the rating of the quality of the evidence, the estimation of benefits to the patient population, and the grading of the strength of the recommendations. Authors were selected, or in some cases writing committees were formed, for each topic to review evidence, write an article, and draft guidelines. These assignments were made by the steering committee based on the authors' known expertise in that specific area of the diagnosis and treatment of cough, and their research and writing skills.

The recommendations were graded, by consensus of the panel, using the ACCP Health and Science Policy Grading System, which is based on the following two components: quality of the evidence; and the net benefit of the diagnostic or therapeutic procedure. The quality of evidence is rated according to the study

design and strength of the other methodologies used in the included studies. The net benefit of the recommendation is based on the estimated benefit to the specific patient population described in each recommendation and not for an individual patient. The authors of each recommendation proposed their best estimate of the net benefit, and the entire panel considered these choices for each recommendation. At the conference, the panel revised the assessments of net benefit for many recommendations to be consistent across all recommendations.

When there was insufficient evidence, the panel used informal group consensus techniques to refine or develop recommendations based on the expert opinion of the panel. Eighty percent of the panel was in attendance at the final conference to collaborate on the final wording and grading of the recommendations. Even those recommendations that were based on expert opinion were considered to be worthy of inclusion, as they were the recommendations of an international and multidisciplinary team with considerable expertise in the diagnosis and treatment of patients with cough.

RATING SCHEME FOR THE STRENGTH OF THE RECOMMENDATIONS

Strength of Recommendations

A = strong recommendation

B = moderate recommendation

C = weak recommendation

D = negative recommendation

I = no recommendation possible (inconclusive)

E/A = strong recommendation based on expert opinion only

E/B = moderate recommendation based on expert opinion only

E/C = weak recommendation based on expert opinion only

E/D = negative recommendation based on expert opinion only

Net Benefit

Substantial = There is evidence of benefit that clearly exceeds the minimum clinically significant benefit and evidence of little harm

Intermediate = Clear evidence of benefit but with some evidence of harms, with a net benefit between that defined for "substantial" and "small/weak"

Small/weak = There is evidence of a benefit that may not clearly exceed the minimum clinically significant benefit, or there is evidence of harms that

substantially reduce (but do not eliminate) the benefit such that it may not clearly exceed the minimum clinically significant benefit

None = Evidence shows that either there is no benefit or the benefits equal the harms

Conflicting = Evidence is inconsistent with regard to benefits and/or harms such that the net benefit is uncertain

Negative = Expected harms exceed the expected benefits to the population

Table: Relationship of Strength of the Recommendations Scale to Quality of Evidence and Net Benefits

	Net Benefit					
Quality of Evidence	Substantial	Intermediate	Small/Weak	None	Conflicting	Negative
Good	A	A	B	D	I	D
Fair	A	B	C	D	I	D
Low	B	B	C	I	I	D
Expert Opinion	E/A	E/B	E/C	I	I	E/D

COST ANALYSIS

A formal cost analysis was not performed and published cost analyses were not reviewed.

METHOD OF GUIDELINE VALIDATION

External Peer Review
Internal Peer Review

DESCRIPTION OF METHOD OF GUIDELINE VALIDATION

The executive committee of the panel extensively reviewed each section of the guideline manuscript during the writing process. The November 2004 conference provided an opportunity for the entire panel to review the latest drafts. Following final revisions and one final review by the executive committee, each section of the guidelines was reviewed and approved by the Clinical Pulmonary Medicine, Respiratory Care, Pediatric Chest Medicine, Environmental and Occupational and Airways Disorders NetWorks of the American College of Chest Physicians (ACCP), as well as the ACCP Health and Science Policy Committee, and subsequently by the ACCP Board of Regents.

RECOMMENDATIONS

MAJOR RECOMMENDATIONS

Definitions for the level of evidence, strength of recommendation, and net benefit follow the "Major Recommendations."

1. When a patient complains of cough that has been present following symptoms of an acute respiratory infection for at least 3 weeks, but not more than 8 weeks, consider a diagnosis of postinfectious cough. Quality of evidence, expert opinion; net benefit, intermediate; strength of recommendation, E/B

2. In patients with subacute postinfectious cough, because there are multiple pathogenetic factors that may contribute to the cause of cough (including postviral airway inflammation with its attendant complications such as bronchial hyperresponsiveness, mucus hypersecretion and impaired mucociliary clearance, upper airway cough syndrome [UACS], asthma, and gastroesophageal reflux disease), judge which factors are most likely provoking cough before considering therapy. Quality of evidence, expert opinion; net benefit, intermediate; strength of recommendation, E/B

3. In children and adult patients with cough following an acute respiratory tract infection, if cough has persisted for >8 weeks, consider diagnoses other than postinfectious cough. Quality of evidence, low; net benefit, intermediate; strength of recommendation, C

4. For adult patients with postinfectious cough, not due to bacterial sinusitis or early on in a Bordetella pertussis infection, while the optimal treatment is not known:

4a. Therapy with antibiotics has no role, as the cause is not bacterial infection. Level of evidence, expert opinion; net benefit, none; grade of evidence, I

4b. Consider a trial of inhaled ipratropium as it may attenuate the cough. Level of evidence, fair; net benefit, intermediate; grade of evidence, B

4c. In patients with postinfectious cough, when the cough adversely affects the patient's quality of life and when cough persists despite use of inhaled ipratropium, consider the use of inhaled corticosteroids. Level of evidence, expert opinion; net benefit, intermediate; grade of evidence, E/B

4d. For severe paroxysms of postinfectious cough, consider prescribing 30 to 40 mg of prednisone per day for a short, finite period of time when other common causes of cough (e.g., UACS due to rhinosinus diseases, asthma, or gastroesophageal reflux disease) have been ruled out. Level of evidence, low; net benefit, intermediate; grade of evidence, C

4e. Central acting antitussive agents such as codeine and dextromethorphan should be considered when other measures fail. Level of evidence, expert opinion; net benefit, intermediate; grade of evidence, E/B

5. When a patient has a cough lasting for $\geq$2 weeks without another apparent cause and it is accompanied by paroxysms of coughing, posttussive vomiting, and/or an inspiratory whooping sound, the diagnosis of a Bordetella pertussis

infection should be made unless another diagnosis is proven. Level of evidence, low; net benefit, substantial; grade of evidence, B

6a. For all patients who are suspected of having whooping cough, to make a definitive diagnosis order a nasopharyngeal aspirate or polymer (Dacron; INVISTA; Wichita, Kansas) swab of the nasopharynx for culture to confirm the presence of B pertussis. Isolation of the bacteria is the only certain way to make the diagnosis. Level of evidence, low; net benefit, substantial; grade of evidence, B

6b. Polymerase chain reaction (PCR) confirmation is available but is not recommended as there is no universally accepted, validated technique for routine clinical testing. Level of evidence, low; net benefit, conflicting; grade of evidence, I

7. In patients with suspected pertussis infection, to make a presumptive diagnosis of this infection, order paired acute and convalescent sera in a reference laboratory. A four-fold increase in IgG or IgA antibodies to pertussis toxin (PT) or filamentous hemagglutinin (FHA) is consistent with the presence of a recent B pertussis infection. Level of evidence, low; net benefit, intermediate; grade of evidence, C

8. A confirmed diagnosis of pertussis infection should be made when a patient with cough has B pertussis isolated from a nasopharyngeal culture or has a compatible clinical picture with an epidemiologic linkage to a confirmed case. Level of evidence, low; net benefit, substantial; grade of evidence, B

9. Children and adult patients with confirmed or probable whooping cough should receive a macrolide antibiotic and should be isolated for 5 days from the start of treatment because early treatment within the first few weeks will diminish the coughing paroxysms and prevent spread of the disease; treatment beyond this period may be offered but it is unlikely the patient will respond. Level of evidence, good; net benefit, substantial; grade of evidence, A

10. Long-acting beta-agonists, antihistamines, corticosteroids, and pertussis Ig should not be offered to patients with whooping cough because there is no evidence that they benefit these patients. Level of evidence, good; net benefit, none; grade of evidence, D

11. All children should receive prevention against pertussis infection as part of a complete diphtheria, tetanus, acellular pertussis (DTap) primary vaccination series. This should be followed by a single dose DTap booster vaccination early in adolescence. Level of evidence, good; net benefit, substantial; grade of evidence, A

12. For all adults up to the age of 65, vaccination with the stronger formulation of TDap vaccine should be administered according to Center for Disease Control (CDC) guidelines. Level of evidence, expert opinion; net benefit, substantial; grade of evidence, E/A

Definitions:

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CLINICAL ALGORITHM(S)

The following clinical algorithms are provided in the section titled "Diagnosis and Management of Cough Executive Summary" (see "Availability of Companion Documents" field)"

- Acute cough algorithm for the management of patients ≥15 years of age with cough lasting <3 weeks
- Subacute cough algorithm for the management of patients ≥15 years of age with cough lasting 3 to 8 weeks
- Chronic cough algorithm for the management of patients ≥15 years of age with cough lasting >8 weeks
- Approach to a child <15 years of age with chronic cough
- Approach to a child ≤14 years of age with chronic specific cough

EVIDENCE SUPPORTING THE RECOMMENDATIONS

TYPE OF EVIDENCE SUPPORTING THE RECOMMENDATIONS

The type of supporting evidence is identified and graded for each recommendation (see "Major Recommendations").

BENEFITS/HARMS OF IMPLEMENTING THE GUIDELINE RECOMMENDATIONS

POTENTIAL BENEFITS

Appropriate diagnosis and effective management of postinfectious cough

POTENTIAL HARMS

Side effects of antibiotic agents

QUALIFYING STATEMENTS

QUALIFYING STATEMENTS

- The information provided in the guideline should be used in conjunction with clinical judgment. Although the guideline provides recommendations that are based on evidence from studies involving various populations, the recommendations may not apply to every individual patient. It is important for the physician to take into consideration the role of patient preferences and the availability of local resources.
- The American College of Chest Physicians (ACCP) is sensitive to concerns that nationally and/or internationally developed guidelines are not always applicable in local settings. Further, guideline recommendations are just that, recommendations not dictates. In treating patients, individual circumstances, preferences, and resources do play a role in the course of treatment at every decision level. Although the science behind evidence-based medicine is rigorous, there are always exceptions. The recommendations are intended to guide healthcare decisions. These recommendations can be adapted to be applicable at various levels.

IMPLEMENTATION OF THE GUIDELINE

DESCRIPTION OF IMPLEMENTATION STRATEGY

An implementation strategy was not provided.

IMPLEMENTATION TOOLS

Clinical Algorithm

For information about availability, see the "Availability of Companion Documents" and "Patient Resources" fields below.

INSTITUTE OF MEDICINE (IOM) NATIONAL HEALTHCARE QUALITY REPORT CATEGORIES

IOM CARE NEED

Getting Better
Staying Healthy

IOM DOMAIN

Effectiveness

IDENTIFYING INFORMATION AND AVAILABILITY

BIBLIOGRAPHIC SOURCE(S)

Braman SS. Postinfectious cough: ACCP evidence-based clinical practice guidelines. Chest 2006 Jan;129(1 Suppl):138S-46S. [76 references] PubMed

ADAPTATION

Not applicable: The guideline was not adapted from another source.

DATE RELEASED

2006 Jan

GUIDELINE DEVELOPER(S)

American College of Chest Physicians - Medical Specialty Society

SOURCE(S) OF FUNDING

American College of Chest Physicians

GUIDELINE COMMITTEE

American College of Chest Physicians (ACCP) Expert Panel on the Diagnosis and Management of Cough

COMPOSITION OF GROUP THAT AUTHORED THE GUIDELINE

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FINANCIAL DISCLOSURES/CONFLICTS OF INTEREST

The American College of Chest Physicians (ACCP) has a very stringent approach to the issue of potential or perceived conflicts of interest. This policy is published on the ACCP Web site at www.chestnet.org. All conflicts of interest within the preceding 5 years were required to be disclosed by all panelists, including those who did not have writing responsibilities, at face-to-face meetings, the final conference, and prior to submission for publication.

The most recent of these are documented in the published guideline supplement. Furthermore, the panel was instructed in this matter, verbally and in writing, prior to the deliberations of the final conference.

ENDORSER(S)

American Thoracic Society - Medical Specialty Society
Canadian Thoracic Society - Medical Specialty Society

GUIDELINE STATUS

This is the current release of the guideline.

GUIDELINE AVAILABILITY

Electronic copies: Available to subscribers of Chest - The Cardiopulmonary and Critical Care Journal.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

AVAILABILITY OF COMPANION DOCUMENTS

The following are available:

- Diagnosis and management of cough executive summary: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Background and Methodology Information

- Introduction to the diagnosis and management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Methodology and grading of the evidence for the diagnosis and management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Additional Background Information

- Anatomy and neurophysiology of the cough reflex: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Global physiology and pathophysiology of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Complications of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Overview of common causes of chronic cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Assessing cough severity and efficacy of therapy in clinical research: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.
- Potential future therapies for the management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

- Future directions in the clinical management of cough: ACCP evidence-based clinical practice guidelines. Northbrook, IL: ACCP, 2006 Jan.

Electronic copies: Available to subscribers of Chest - The Cardiopulmonary and Critical Care Journal.

Print copies: Available from the American College of Chest Physicians, Products and Registration Division, 3300 Dundee Road, Northbrook IL 60062-2348.

PATIENT RESOURCES

None available

NGC STATUS

This NGC summary was completed by ECRI on May 4, 2006. The information was verified by the guideline developer on June 5, 2006.

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